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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/646,884	08/25/2003	Hiroshi Nomura	P23693	1033
7055	7590	08/24/2004	EXAMINER	
GREENBLUM & BERNSTEIN, P.L.C. 1950 ROLAND CLARKE PLACE RESTON, VA 20191			SMITH, ARTHUR A	
			ART UNIT	PAPER NUMBER
			2851	

DATE MAILED: 08/24/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/646,884

Applicant(s)

NOMURA, HIROSHI

Examiner

Arthur A Smith

Art Unit

2851

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 August 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2,5,8 and 9 is/are rejected.
- 7) ☒ Claim(s) 3,4,6 and 7 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 25 August 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 5/17/04.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

Claims 1, 5, 8 and 9 are rejected under 35 U.S.C. 102(a) as being anticipated by Sasaki (US 6490099 B2).

In reference to claims 1 and 5, Sasaki discloses a cam mechanism comprising: a cam ring, ref. 17; and a linearly movable frame, ref. 14, movable by said cam ring along an optical axis of an optical system without rotating, by engagement of a plurality of cam grooves ref. 21 (ref. 54 and 55) located on said cam ring with a plurality of complementing cam followers located on said linearly movable frame when said cam ring is rotated, said linearly movable frame supporting at least one optical element of said optical system, col. 3 lines 56-62, wherein said plurality of cam grooves are located at different positions in both said optical axis direction and a circumferential direction of said cam ring, and respectively trace substantially a same reference cam diagram, col. 5 lines 54-56; and wherein said plurality of complementing cam followers are located at different positions in both said optical axis direction and a circumferential direction of said linearly movable frame, and are engageable in said plurality of cam grooves, respectively, col. 5 lines 58-67.

In reference to claim 2, Sasaki discloses wherein said plurality of cam grooves comprises a front cam groove, ref. 54, and a rear cam groove, ref. 55, positioned behind said front cam groove in said optical axis direction, and wherein said plurality of complementing cam followers comprises a front cam follower, ref. 51, and a rear cam follower, ref. 50, positioned behind said front cam follower in said optical axis direction and are engageable in said front cam groove and said rear cam groove, respectively, see figs. 10 and 11.

In reference to claim 8, Sasaki discloses wherein said optical system comprises a plurality of movable lens groups, ref. 11 and 12, movable in said optical axis direction while changing a distance therebetween by a rotation of said cam ring, said linearly movable frame holding at least one of said plurality of movable lens groups, col. 3 lines 1-9.

In reference to claim 9, Sasaki discloses wherein said optical system comprises a photographing lens system, col. 1 lines 5-8.

Allowable Subject Matter

Claims 3, 4, 6 and 7 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: The prior art of record fails to disclose or teach wherein the cam grooves intersect and wherein at least one cam follower of said plurality of complementing cam followers remains engaged in a corresponding one of said plurality of cam grooves

when another cam follower of said plurality of complementing cam followers passes through an intersection of said cam grooves during a rotation of said cam ring.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Imanari (US 5731913) discloses the use of plural cam followers and plural cam grooves to improve a cam ring structure. Imanari fails to disclose wherein the cam grooves respectively trace substantially a same reference cam diagram.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Arthur A Smith whose telephone number is (571) 272 2129. The examiner can normally be reached on Monday - Thursday from 8:00 AM to 5:30 PM. The examiner can also be reached on alternate Fridays during the same hours.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Judy Nguyen can be reached on (572) 272 2258. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, appearing to read 'Arthur A. Smith', is positioned above the printed name and date.

Arthur A. Smith
August 19, 2004